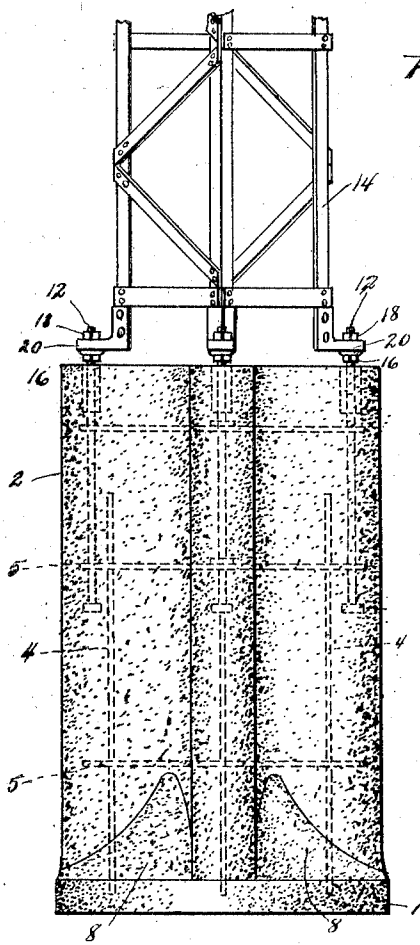
I. C. BUSHONG.

BASE CONSTRUCTION FOR STEEL TOWERS.

APPLICATION FILED NOV. 4, 1916.

1,334,519. Patented Mar. 23, 1920.

Fig. 1.



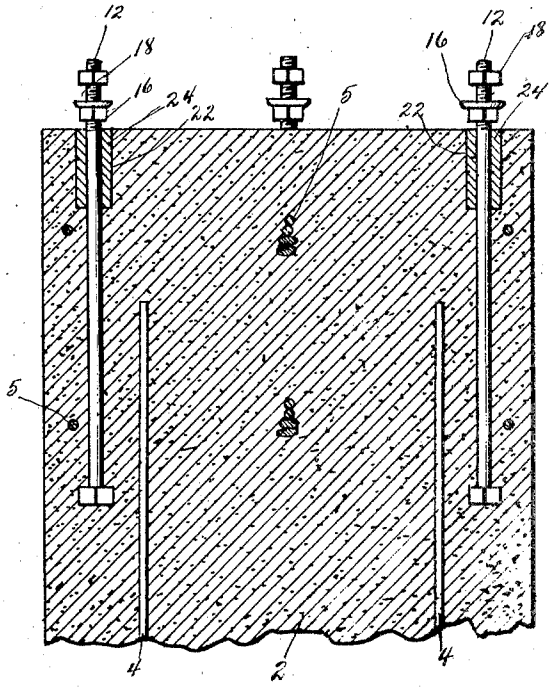


Fig. 3.

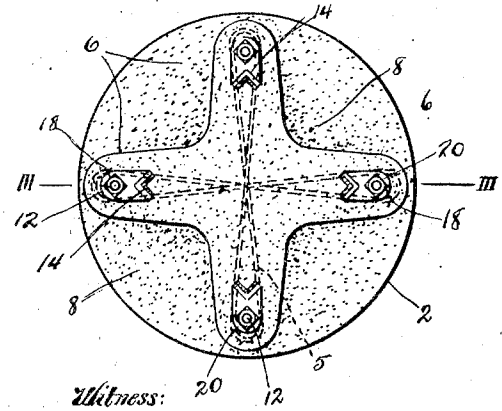


Fig. 2.

Witness:

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UNITED STATES PATENT OFFICE.

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BASE CONSTRUCTION FOR STEEL TOWERS.

1,334,519. Specification of Letters Patent. Patented Mar. 23, 1920.

Application filed November 4, 1916. Serial No. 129,484.

To all whom it may concern:

Be it known that I, IVAN C. BUSHONG, a citizen of the United States, residing at Ottawa, in the county of Franklin, State of Kansas, have invented certain new and useful Improvements in Base Constructions for Steel Towers, of which the following is a full and exact specification.

The present invention relates to tower constructions, and aims to provide an improved base structure designed more particularly for supporting the framework of steel towers which are commonly provided with foundations constructed of concrete material or the like.

One object of the invention is to devise a base construction of such a design that an economy of the concrete material will be effected without any sacrifice in its strength and stability as a supporting means.

It is also an object to produce an improved reinforced concrete base construction in which vertical tower supporting rods are provided and arranged to take the direct weight of the tower frame, and are also provided with means for adjusting said tower frame into true vertical position.

It is a further object to provide these tower-supporting rods with an effective means for taking up the vibration transmitted thereto from the tower frame and thereby relieving the concrete material of any injurious strains due to such vibration of the tower structure.

It is also sought to devise a neat, simple and durable construction for the purpose desired, and which shall be of an economical and inexpensive character.

With these general objects in view the invention will now be described with reference to the accompanying drawing illustrating one form of construction which has been devised for embodying the improvements, after which those features and combinations which are deemed to be novel will be set forth and defined in the appended claims.

In the drawing—

Figure 1 is a side elevation of a tower construction embodying the present improvements, the upper portion of the tower frame being omitted;

Fig. 2 is a plan view of the same; and

Fig. 3 is a vertical section, shown on a larger scale, the section being indicated by the line III—III of Fig. 2.

Referring to the drawing in detail, this illustrates the base 2, forming the foundation for the tower, as constructed of reinforced concrete material, having reinforcing 4 and 5 arranged both vertically and transversely, respectively, in any approved manner. In the present case, the main body portion of the base 2 is made of a shape of which the horizontal cross-section forms a figure of three or more outwardly extending lobes 6. In the construction shown the body portion is formed with four such lobes (see Fig. 2), through each of which is extended one of the vertical reinforcing members 4, and at vertical intervals the horizontal reinforcing members 5 are arranged diametrically across the base, intersecting the center thereof and connecting opposite lobes. The body portion of the base gradually expands at its lower end, as indicated at 8, into a bottom portion 10 of materially greater cross-sectional area than that of the main body portion of the base.

In each of the lobes 6 is also embedded a vertical supporting rod 12 the upper end of which projects above the upper face of the base for engagement with one of the legs of the tower frame 14. Each of the rods 12 is threaded at its upper end and provided with an adjusting and supporting nut 16 and with a clamping nut 18, the nut 16 being designed for engagement with the under face of the horizontal bracket projection 20 of the corresponding corner of the tower frame 14, by the operation of which nuts 16 said frame may be adjusted into true vertical position, while the nuts 18 cooperate with the nuts 16 for securely clamping the parts in their adjusted position.

By this means the weight of the tower frame is received directly upon the supporting rods 12, and in order that those vibrations of the tower frame which are imparted to said rods may be largely taken up without any appreciable injury to the concrete material, the latter is cored out around the upper ends of said rods to form the pockets 22 within which is tightly packed a quantity of composition material 24 of such a nature as to exert a shock-absorbing action about these particular portions of the rods

where the vibrating tendency is most severe. The character of the composition material 24 should be such as to remain slightly plastic under all temperatures to which such tower constructions may be subjected.

It will thus be apparent that a simple and efficient construction has been devised for carrying out the desired objects of the invention. The design of base is such as to require a minimum amount of reinforced concrete material for its construction, this base being of course embedded in the ground and its lines serving to preserve the principal and essential lines of strength, and the lower expanded portions 8 and 10 acting to securely anchor the base in the required fixed position. The manner of mounting the supporting rods and connecting the upper ends thereof to the tower frame provides a secure and reliable supporting structure whereby the transmission of the tower frame's vibration may be effectively controlled, and the provision of the shock-absorbing material serves to practically eliminate any injurious strains to the concrete material of the base. The mode of securing the tower frame in position upon the supporting rods by the means of the adjusting and clamping nuts also affords a convenient and practical method of maintaining a proper vertical alinement of the tower frame.

While the foregoing represents what is now deemed to constitute the preferred form of embodiment of the invention, the right is reserved to such formal changes or modifications as may fairly fall within the scope of the appended claims.

Claims:

1. In a tower construction, a concrete base having vertical supporting rods embedded therein and projecting above the top of the base, a composition of shock-absorbing material interposed between the upper portions of said rods and the surrounding concrete material, and a tower frame supported upon the upper projecting ends of said rods.

2. In a tower construction, a concrete base having vertical supporting rods embedded therein and projecting above the top of the base, the upper face of said base being formed with pockets around the upper portions of said rods, a composition of shock-absorbing material packed in said pockets and inclosing the portions of the rods therein, and a tower frame supported upon the upper projecting ends of said rods.

3. In a tower construction, a concrete foundation comprising a body portion having a horizontal cross-sectional contour forming a figure of three or more outwardly projecting lobes, and a base or bottom portion of a materially greater cross-sectional area than the cross-sectional area of said body portion, a supporting rod extending vertically through the upper end of each of the lobes of said body portion and projecting above the top thereof, and a tower frame supported upon the upper projecting ends of said rods.

4. In a tower construction, a concrete foundation comprising a body portion having a horizontal cross-sectional contour forming a figure of three or more outwardly projecting lobes, said body portion expanding gradually at its lower end into a base or bottom portion of materially greater cross-sectional area than the cross-sectional area of said body portion, a supporting rod embedded within each of the lobes of said body portion and projecting above the top thereof, and a tower frame supported upon the upper projecting ends of said rods.

5. A concrete foundation comprising a body portion having a horizontal cross-sectional contour forming a figure of three or more radially projecting lobes, and a base portion of a materially greater cross-sectional area than the cross-sectional area of said body portion, a supporting rod extending vertically through the upper end of each of the lobes of said body portion and projecting above the top thereof, and horizontal reinforcing members embedded in said body portion and connecting diametrically opposite lobes and having the ends of said members looped around said supporting rods.

IVAN C. BUSHONG.